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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,192	02/07/2001	David Charles Adams	ADN2653P1US	9033

7590 11/17/2003

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EXAMINER	
LEUNG, JENNIFER A	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/778,192	ADAMS ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *10-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-12* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 February 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5/11/01
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-9 on October 16, 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 10-12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Drawings

3. The drawings are objected to because it is unclear as to the relative upstream and downstream locations in the apparatus. The Examiner suggests supplying directional arrows to the Figures in order to indicate the fluid flow direction through the apparatus. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because the specification lacks "a reference to and brief description of the drawings" as set forth in 37 CFR 1.74. See MPEP § 608.01(f). Appropriate correction is required.

Claim Objections

5. Claims 7 and 9 are objected to because of the following informalities: Regarding claim 7, the term, -- tube --, should be inserted after "reactor" in line 2 for consistency in claim terminology. Regarding claim 9, the term, -- receiving --, should be inserted before "station" in line 3 for consistency in claim terminology. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear as to the structural relationship of the "at least one feed" (line 3), to the other elements of the apparatus. Also, it is unclear as to the structural relationship of, "an outlet" (line 4), to the other elements of the apparatus. Also, it is unclear as to the structural relationship of, "an additional tube" (line 4), to the other elements of the apparatus. Also, it is unclear as to the structural element referred to by the possessive pronoun of the phrase, "its inlet" in line 3 (i.e., the inlet of the circulation pump, or the inlet of the reactor tube).

Regarding claim 3, it is unclear as to the relationship between "a pig receiving station" (line 6) and "a pig receiving station" set forth in claim 1 (line 5). Also, it is unclear as to the structural element referred to by the possessive pronoun "it" in line 3 (i.e., the reactor tube, or the aperture). Also, it is unclear as to which tube is intended by "the tube" in line 5 (i.e., the reactor tube, or the additional tube).

Regarding claim 6, it is unclear as to the structural limitation applicants are attempting to recite by, "the slot increases downstream" in line 2, as no frame of reference with respect to the other elements of the apparatus for the upstream or downstream direction is provided.

Regarding claim 7, it is unclear as to the relationship between "a pig" (line 2) and "a pig" set forth in claim 1 (line 4).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Rouzier (US 3,595,846).

Regarding claims 1 and 2, Rouzier (FIG. 1, 2) discloses an apparatus comprising a circulation pump (i.e., pump(s) **P**, **33**, **36**, **39** or **42**; column 4, line 7-12; column 6, line 65 to column 7, line 8); a reactor tube (i.e., tubular chamber **21**) which connects the outlet(s) of the circulation pump(s) to its inlet (i.e., to the reactor tube inlet, or point of origin **22**; column 6, lines 51-55); at least one feed for supplying raw materials (i.e., via intake **31**; intervening station **32**; tube **35**; point **38**); an outlet (i.e., reaction medium discharge line **45**; column 7, lines 13-18); an additional tube (i.e., longitudinal bore **47**; column 7, lines 30-47); and a pig receiving station (i.e., distributor **24**) which is in parallel connection with the circulation pump(s) or the reactor tube **21**; the pig receiving station **24** being integrated into the additional tube **47** (see FIG. 1).

Regarding claim 3, Rouzier discloses, "*difference in pressure* to be established between the point of origin [**22**] and the terminal point [**23**] may be obtained by *means of pumps* which inject fluids constituting the reaction medium at the point of origin and at intermediate points," (column 4, lines 7-12; with emphasis added), and therefore, the circulation pump(s) inherently define a suction side and a delivery side in the apparatus. Rouzier (FIG. 1) additionally discloses the reactor tube **21** comprises an aperture (i.e., tight partition **50** formed with hole **51**; column 7,

lines 35-38) that is in fluid communication with the suction side (i.e., the terminal point **23**) and continues on to the delivery side (i.e., the point of origin **22**); the part of the tube between the suction and delivery sides serving as a pig receiving station (i.e., distributor **24**).

Regarding claim 7, Rouzier discloses the reactor tube **21** comprises means (i.e., pressurized reaction mixture flowing within reactor tube **21**; column 4, lines 7-20) for directing a pig (i.e., a separator **26**) into the pig receiving station (distributor **24**).

Regarding claim 8, Rouzier discloses at least a substantial part of the reactor tube **21** forms at least one helical coil (i.e., as defined by tubes **70** and U-shaped segments **80**; see FIG. 2)

Regarding claim 9, Rouzier discloses, "The transfer of a separator **26** from the terminal point **23** to the point of origin **22** is controlled manually, or automatically by an suitable means including an automatic switch **S** operated at timed intervals or by the passage of a separator through a given point of the circuit, e.g., the point **46**," (column 7, lines 64-69), and therefore, the apparatus inherently comprises a pig detector for checking whether the pig (i.e., a separator **26**) is present in the pig receiving station **24**.

Instant claims 1-3 and 7-9 structurally read on the apparatus of Kasai et al.

8. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chaumont et al. (US 5,242,827).

Regarding claim 1, Chaumont (FIG. 3-4) discloses an apparatus comprising a circulation pump **10**; a reactor tube (i.e., pipe **22** of closed loop form, traversing solar receptor **24**) that connects the outlet of pump **10** to the inlet of pump **10** (see FIG. 3; inlet and outlet of pump **10** indicated by directional flow arrows); at least one feed for supplying raw materials (i.e., carbonator **6**, inherently comprising a feed for carbon dioxide gas; column 1, lines 16-21); an

outlet **28** (i.e., of the solar receptor **24**; column 4, lines 51-57); an additional tube (i.e., branch duct **26**) for by-passing a pig (i.e., ball **34**) around the circulation pump **10**; and a pig receiving station (i.e., comprising first valve **38**; column 5, lines 2-20) which is in parallel connection with the circulation pump **10** or the reactor tube **22**.

Regarding claim 2, Chaumont (FIG. 3) discloses the pig receiving station **38** is integrated into the additional tube **26** for by-passing a pig **34** around the circulation pump **10**.

Regarding claim 3, Chaumont (FIG. 3, 4) discloses pump **10** has a suction side (i.e., upstream of pump **10**) and a delivery side (i.e., downstream of pump **10**), and the reactor tube **22** has an aperture (i.e., as defined by region of rod **46**) through which it is in fluid communication with the suction side of pump **10** and continues on to the delivery side of pump **10**; the part of the tube between the suction and delivery sides of the circulation pump (i.e., comprising the additional tube or branch duct **26**, and valve **38**) serving as a pig receiving station.

Regarding claim 7, Chaumont (FIG. 3, 4; column 6, lines 45-52) discloses the reactor tube **22** comprises means for directing a pig **34** into the pig receiving station (duct **26**, valve **38**), wherein the means comprises the pressurized fluid flow (dashed-arrows) as guided by rod **46**.

Regarding claim 8, Chaumont (FIG. 3) discloses at least a substantially part of the reactor tube **22** forms at least one helical coil (i.e., comprising a certain number of U-tubes **32** or any other appropriate shape; column 5, lines 41-50).

Regarding claim 9, Chaumont (FIG. 3, 4; column 5, lines 13-20; column 6, line 66 to column 7, line 4) discloses a pig detector (i.e., ball detection cell **56**) for checking whether the pig **34** is present in the pig receiving station (i.e., duct **26**, valve **38**).

Instant claims 1-3 and 7-9 structurally read on the apparatus of Chaumont.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaumont et al. (US 5,242,827) in view of Wennerberg et al. (US 3,425,083).

Regarding claims 4 and 5, Chaumont et al. is silent as to the aperture, as defined by the region of the reactor tube **22** comprising rod system **44** and rod **46**, comprising the recited slot. Wennerberg et al. teaches an apparatus structurally similar to the apparatus of Chaumont et al., wherein the apparatus comprises a closed loop tube **3** comprising an aperture (i.e., longitudinally extending slots **5** or **12**) for allowing a portion of the liquid within the tube to escape while maintaining the rest of the liquid and a ball **6** (i.e., pig) in circulation; the slots **5**, **12** being small enough so that ball **6** is unable to pass; and the slots **5**, **12** performing a function substantially identical to the function of the aperture of Chaumont et al. (column 2, lines 52-63). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the slot of Wennerberg et al. for the aperture in the apparatus of Chaumont et al., because substitution of known equivalent structures involves only ordinary skill in the art. *In re*

Fout 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding claim 6, although the collective teachings of Chaumont et al. and Wennerberg et al. are silent as to the width of the slot increasing downstream, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made select an appropriate configuration for the slots in the modified apparatus of Chaumont et al., on the basis of suitability for the intended use, since it has been held that changes in size involve only ordinary skill in the art, *In re Rose*, 220 F.2d 459, 463, 105 USPQ 237, 240 (CCPA 1955), and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is *703-305-4951***. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

** *Effective December 10, 2003, the examiner will be reached at telephone no. 571-272-1449.*

Jennifer A. Leung
November 10, 2003

Hien Tran

HIEN TRAN
PRIMARY EXAMINER